CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-03

WASTE DISCHARGE/CLOSURE REQUIREMENTS FOR:

BORDEN CHEMICAL COMPANY
FREMONT PLANT SLUDGE IMPOUNDMENTS
ALAMEDA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, (herinafter called the Board), finds that:

1. Borden Chemical Company, a division of Borden Inc., the site legal owner and operator, (hereinafter referred to as the discharger) by applications dated February 20, 1986 and July 17, 1986 has applied for closure requirements for the concrete lined sludge impoundment located in the north east corner of the discharger's property as shown on Attachment A, which is hereby incorporated and made a part of this Order, and three other concrete lined impoundments used for the the storage and/or drying of sludge prior to disposal. The project site is located at 41100 Boyce Road in Fremont, Alameda County.

2. On May 17, 1977 the Board adopted Waste Discharge Requirments, Order No. 77-51, prescribing requirements for the construction and operation of the 0.83 acre triangular shaped impoundment as shown on Attachment A. Approximately 2300 gallons per day of plant waste was discharged to the impoundment. The impoundment was used for the drying of urea-formaldehyde resin sludge and phenol and formaldehyde sludge, before disposal to off-site landfills. Because of the liquid content of these wastes, the site conditions, and the soluable concentrations of formaldehyde and phenols in the wastes these waste sludges are classified as designated wastes pursuant to Section 2522 of Title 23, Chapter 3, Subchapter 15 of the California Administrative Code (Subchapter 15). Discharge of plant waste to this impoundment was discontinued on July 29, 1982 and all the dried sludge remaining in the impoundment has been removed and disposed of off-site.

3. The discharger also operates three other smaller concrete lined impoundments (See Attachment A) for the drying and/or storage of sludges prior to off-site disposal. Prior to discontinuing use of the 0.83 acre impoundment the discharger undertook a waste reduction program that significantly reduced the amount of waste sludges that were generated at the plant. These three smaller impoundments were not previously regulated by the Board.

4. The plant site is located on the bay mud flats in the toe of the Niles Cone groundwater basin just east of the bay salt ponds. The site is immediately underlain by interbedded layers of silty clays, clays, and clayey silts to a depth of approximately 35 feet. Perched groundwater exists in the interbedded clayey material beneath the site and there is a very shallow gradient towards the west. The Newark Aquifer is at a depth of approximately 40 feet beneath the site. The Alameda County Water District (ACWD) operates their Salinity Barrier Project approximately 1000 feet west of the plant site. This project is designed to reverse salt water intrusion into the Newark Aquifer and restore portions of the aquifer east of the barrier to be used as water supply. The gradient in the Newark Aquifer is generally towards the barrier project wells to the west.

5. The shallow perched groundwater beneath the site has been monitored by 9 wells. (See Attachment A for well locations) Wells G1 thru G3 were installed surrounding the 0.83 acre sludge impoundment and wells B1 thru B4 were installed immediately adjacent to, and down gradient of, the three smaller sludge impoundments. Wells B5 and B6 were installed to provide background groundwater data outside the influence of any of the impoundments. The monitoring wells show that the shallow perched groundwater has been polluted with formaldehyde and phenols above the State Action Levels of 30 ppb and 1 ppb respectively. The range of concentration in wells B1, B2, and B4 of formaldehyde is from less than 120 ppb to 8200 ppb and the range of concentration of phenols in wells G1 thru G3 is from 1 to 18 ppb. The monitoring of the shallow groundwater has also found levels of 1,1 Dichloroethane, toluene, and napthalene above standard detection limits but below the State Action Levels for these compounds.

6. The shallow perched groundwater, at and beneath the site, is not naturally potable because of the high Total Disolved Solids (1100 to 3200 ppm) and chloride (150 to 290 ppm) concentrations. Additionally, the low production rate from this groundwater zone essentially precludes obtaining useable quantities of water for any beneficial use. Based upon the characteristics of the geologic materials immediately underlying the site, and sporadic water level measurements in both the shallow groundwater zone and the Newark Aquifer, it is reasonable to assume that the shallow groundwater is not hydraulically connected to the deeper Newark Aquifer because of the permeability of the underlying soils and an apparent upward gradient from the Newark Aquifer. Compliance with the requirements of this Order will verify this assumption.

7. ACWD studies show that the groundwater in the Newark Aquifer underlying the site is not potable because of the high chloride concentration (5600 to 10000 ppm). The Salinity Barrier Project was designed by ACWD to restore portions of this aquifer by preventing continued salt water intrusion and recharging fresh water. Current use of the groundwater in the Newark Aquifer within a mile of the site is only for irrigartion and industrial water supply.

8. Surface runoff from the process areas of the site is collected in the three smaller impoundments and several sumps for reuse within the plant. Runoff from the rest of the site is diverted from the process areas to prevent contamination with spilled materials. Discharge of runoff from the site is regulated by this Board's Order No. 79-40, extended by Order No. 84-85, NPDES No. CA0027812.

9. The present and future beneficial uses of the groundwater found in the Newark Aquifer are:

   a. Domestic water supply
   b. Stock watering and agricultural supply
   c. Irrigation
   d. Industrial water supply

10. The discharger submitted, as a part of their Report of Waste Discharge, the following reports: "Evaporation Pond Closure Report" dated July 15. 1986, "Borden Chemical Report of Waste Discharge" undated, and the following amendments: 1) May 30, 1986 and October 15, 1986 "Groundwater Monitoring Reports", and 2) October 14, 1986 "Wastewater Tanks Closure Plan Amendment" The discharger, on the basis of the above cited reports, as modified by the requirements of this Order, proposes to close all of the concrete lined impoundments used for the storage and/or drying of sludges in accordance with the requirements of Subchapter 15 and are hereby incorporated as a part of this Order.

11. The above cited reports propose to no longer use any of the concrete lined impoundments for the storage and drying of sludges prior to off-site disposal. The sludges have been removed from the 0.83 acre impoundment and the other three impoundments will be replaced by a steel tank storage system as designed in the above cited reports. The concrete impoundments will provide for secondary containment for the steel tanks. The three surface impoundments will also be used for spill control and will be kept clean of all waste materials.

12. The above cited reports propose to address the shallow groundwater pollutants by removing the source of any further pollution, prevent a buildup of hydraulic head that could cause further migration of the existing polluted groundwater, and continue to monitor the shallow groundwater to ensure that the contamination does not increase. The reports also claim that the pollutants in the shallow groundwater will biodegrade naturally but this has not been verified.

13. The Regional Board adopted a revised Water Quality Plan for the San Francisco Bay Basin on July 1, 1982 and this Order implements the water quality objectives stated in that plan.

14. This project constitutes the continued operation of an existing facility with changes to meet public health and safety standards and is therefore categorically exempt from the provisions of the California Environmental Quality Control Act (CEQA) pursuant to Section 15301 of the Resources Agency Guidelines.

15. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge, and has provided them with an opportunity to submit their written views and recommendations.

16. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Borden Chemical Company, and any other persons that currently or in the future own this land or operate this facility, shall meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder and shall also comply with the following:

A. PROHIBITIONS

1. The disposal of waste shall not create a pollution or nuisance as defined in Section 13050(l) of the California Water Code.

2. No hazardous or designated wastes shall be stored or disposed of in the closed impoundments. Wastes generated at the facility shall be disposed of at an authorized waste management unit for these wastes.

3. The discharger shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:

   a. Surface Waters

      1. Floating, suspended, or deposited macroscopic particulate matter or foam.

      2. Bottom deposits or aquatic growth.

      3. Alteration of temperature, turbidity, or apparent color beyond natural background levels.

      4. Visible, floating, suspended or deposited oil or other products of petroleum origin.

      5. Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

   b. Groundwater

      1. The discharger shall not cause groundwater in the Newark Aquifer to be degraded.

2. The shallow groundwater beneath the site and above the Newark Aquifer shall not be degraded significantly above the level of contamination that now exist. Statistically significant is defined in Article 5 of Subchapter 15.

B. SPECIFICATIONS

1. The discharger shall implement the construction of the proposed waste management system and complete the closure of all the concrete lined impoundments, as described in their Closure Plan, and the subsequent amendments, cited in Finding No. 10 of this Order; and any other reports required to be submitted in compliance with this Order.

2. The site shall be protected from any washout or erosion of wastes or covering material and from inundation which could occur as a result of a 100 year 24 hour precipitation event.

3. Surface drainage from tributary areas, and internal site drainage from surface and subsurface sources, shall not contact or percolate through wastes.

4. Measures shall be taken to assure that the groundwater monitoring wells will remain operational as long as the waste pose a threat to water quality.

5. The discharger shall install any additional groundwater and leachate monitoring devices required to fulfill the terms of any Self-Monitoring Program issued to the discharger in order that the Board may evaluate compliance with the conditions of this Order.

6. The discharger shall operate this facility so as not to cause a statistically significant difference to exist between water quality at the compliance points and the following Water Quality Protection Standards (WQPS). The compliance point for the Newark Aquifer is the downgradient monitoring well that is to be installed, as required by the attached self-monitoring program; well NW-2. The compliance points for the shallow groundwater are identified in the attached self-monitoring program as wells B-1,B-2, B-3, and B-4. The background well for the Newark Aquifer, to be installed, is identified as NW-1.

WQPS FOR NEWARK AQUIFER

a. Formaldehyde= Not detectable with the detection limit less than 30 ppb.

b. Phenol= Not detectable with the detection limit less than 1 ppb.

c. 1,1-dichloroethane= Not detectable with the detection limit less than 1 ppb.

WQPS FOR SHALLOW GROUNDWATER

a. Formaldehyde= To be established*

b. Phenol= To be established*

c. 1,1-dichloroethane= To be established*

* The WQPS for these constituents in the shallow groundwater shall be the average concentration found in each well after a minimum of four quarters of sampling and analysis according to the attached self-monitoring program. After the initial four quarterly samples have been collected and the average concentration (WQPS) has been established the quarterly analysis result for each well shall be compared statistically with the WQPS to determine if there is a significant increase in the concentration of a given constituent in a particular well.

C. PROVISIONS

1. The discharger shall comply with all Prohibitions, Specifications, and Provisions of this Order, except Prohibitions 2 and Specification 6 immediately upon adoption of this Order. The discharger shall achieve full compliance with these requirements, according to the following schedule of tasks:

TASK	COMPLIANCE DATE
a) Install monitoring wells NW-1 and NW-2 at the locations shown on Attachment A to this Order. Well NW-2 shall be a double cased well designed to monitor the Newark Aquifer at a depth of approximately 40-50 feet beneath the ground surface and prevent migration of contaminants from the shallow groundwater zone.	April 1, 1987
b) Stop the discharge of all wastes into the impoundments. Complete construction of alternative runoff and waste sludge management system, as described in the reports cited in Finding No. 10 of this Order. All the steel tanks shall be installed and fully operational.	August 1, 1987
c) Cleanout all impoundments and dispose of all waste sludges at an authorized disposal facility.	August 1, 1987

2. Submit the as built closure certification report by September 1, 1987 that documents compliance with this Order. This report shall document that the impoundments have been completely closed according to the closure plan.

3. The discharger shall establish background water quality, and water quality at the compliance points, in the Newark Aquifer and the shallow groundwater zone by monitoring all wells quarterly for the first four quarters after adoption of this Order according to the requirements of the attached self-monitoring program. The discharger shall submit a report, by April 15, 1988 that evaluates compliance with Prohibition 2 and Specification 6 of this Order.

4. The discharger shall file with the Regional Board quarterly self-monitoring reports performed according to any self-monitoring program issued by the Executive Officer.

5. All reports pursuant to these Provisions shall be prepared under the supervision of a registered civil engineer or certified engineering geologist.

6. The discharger shall remove, according to a plan acceptable to the Executive Officer, and relocate any wastes which are discharged at this site in violation of these requirements.

7. The discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements. This includes any proposed change in the boundaries of the disposal areas or the ownership of the site.

8. The discharger shall maintain a copy of this Order at the site so as to be available at all time to site operating personnel.

9. This Board considers the property owner and site operator to have continuing responsiblity for correcting any problems which arise in the future as a result of this waste discharge or related operations.

10. The discharger shall maintain all devices or designed features installed in accordance with this Order such that they continue to operate as intended without interruption except as a result of failures which could not have been reasonably foreseen or prevented by the discharger.

11. The discharger shall permit the Regional Board or its authorized representitive, upon presentation of credentials:

    a. Entry upon the premises on which wastes are located or in which any required records are kept.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.

    d. Sampling of any discharge or groundwater covered by this Order.

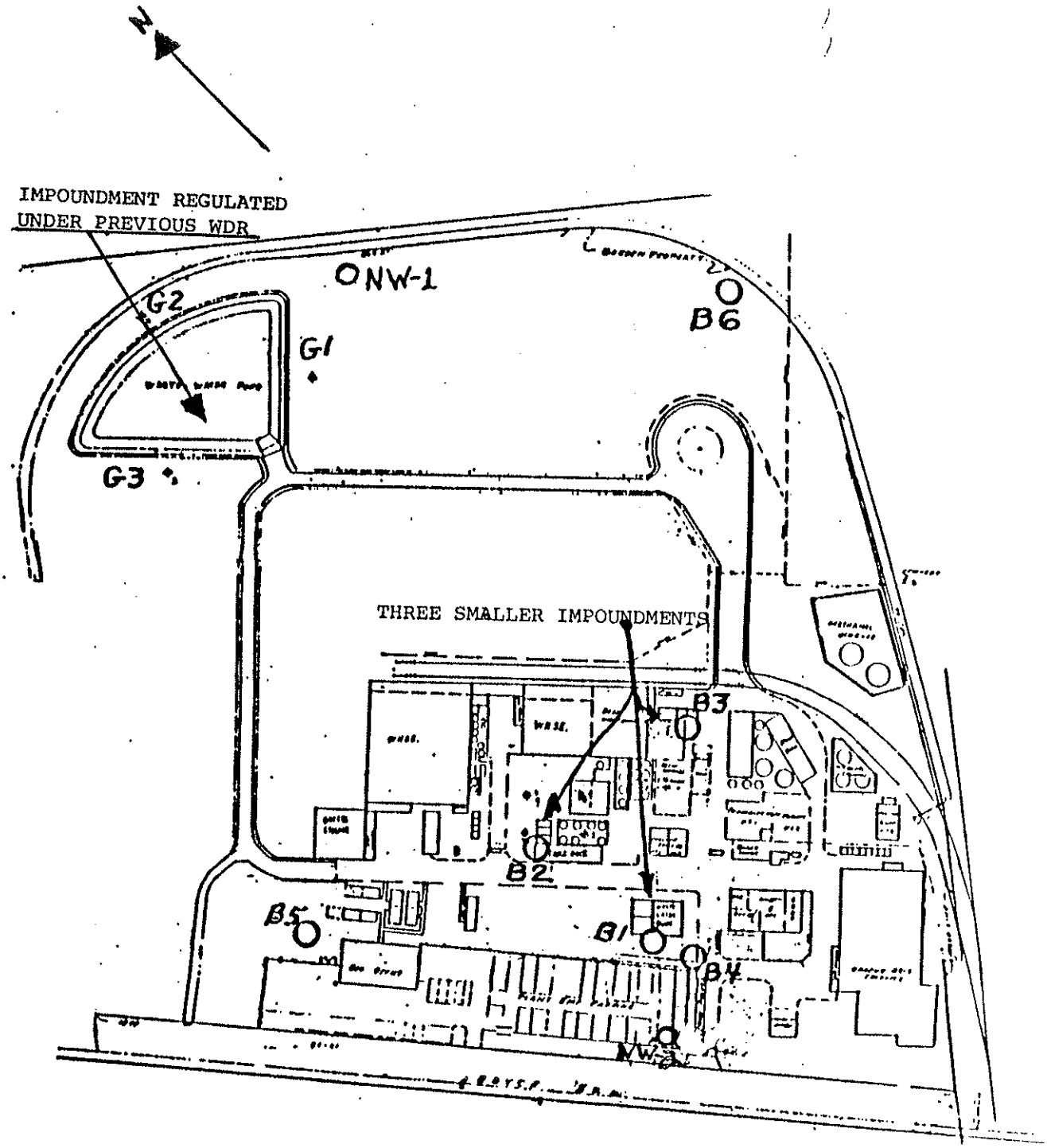
12. This Board's Order No. 77-51 is hereby rescinded.

13. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws; and do not authorize the discharge of wastes without appropriate permits from other agencies or organizations.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 21, 1987.

Roger B. James
Executive Officer

Attachments: A) Site location map
B) Self Monitoring Program



SCALE: 1 inch= 200 feet

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT A: BORDEN CHEMICAL COMPANY
SITE MAP
WITH MONITORING WELL
LOCATIONS

DRAWN BY:	DATE:	DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

BORDEN CHEMICAL COMPANY
FREMONT PLANT SLUDGE IMPOUNDMENTS
ALAMEDA COUNTY

PART A

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Self-Monitoring Program is issued in accordance with Section C.4 of Regional Board Order No. 87-03.

The principal purposes of a self-monitoring program by a waste discharger are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage , and analyses shall be performed according to most recent version of Standard Methods for the Analysis of Wastewater.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State Department of Health. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.

2. Standard analysis and measurements refer to:

   a. pH
   b. Electrical Conductivity (EC)
   c. Total Disolved Solids (TDS)
   d. Total Phenols
   e. Formaldehyde
   f. TotalOrganic Carbon
   g. Water elevation in feet above Mean Sea Level.
   h. EPA Method 601, identifying all peaks greated than 1 microgram/liter.

D. SCHEDULE OF SAMPLING, ANALYSIS, AND OBSERVATIONS

The discharger is required to perform sampling, analysis, and observations according to the shcedule specified in Part B, and the requirements of Article 5 of Subchapter 15.

E. RECORDS TO BE MAINTAINED

Written self monitoring reports shall be maintained by the discharger, and shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.

2. Date and time of sampling.

3. Date and time that analyses are started and completed, and name off the personnel performing the analyses.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used. A reference to a specific section of a reference required in Part A Section B is satisfactory.

5. Results of analyses, and detection limits for each analyses.

F. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Written self-monitoring reports shall be filed each calendar quarter by the fifteenth day of the following month. In addition an annual report shall be filed as indicated in F.2 The reports shall be comprised of the following:

a. Letter of Transmittal

A letter transmitting the essential points in each self-monitoring report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the past quarter and actions taken or planned for correcting the violations, such as operation modifications and/or facilities expansion. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the corespondence transmitting such schedule will be satisfactory. If no violations have occurred in the last quarter this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer at the level of vicepresident or his duly authorized representitive if such representitive is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

b. Each report shall include a compliance evaluation summary sheet. This sheet shall contain:

1. The sample mean and the sample variance for all sample sets taken from all compliance points, and shall determine if the difference between the mean of each sample set and the water quality protection standard is significant at the 0.05 level using Cochran's Approximation to the Behrens-Fisher Student's t-testas described in Appendix II of Subchapter 15. The discharger may propose an alternative statistical procedure to be used in making this determination pursuant Section 2555(h)(3) of Subchapter 15. If a statistically significant difference is found this shall be reported as a suspected requirement violation in the letter of transmittal.

2. A graphic description of the velocity and direction of groundwater flow under/around the waste management unit, based upon the past and present water level elevations and pertinent visual observations in both the shallow groundwater zone and the Newark Aquifer. This shall include a site map with a plot of the water elevations above Mean Sea Level for all wells.

c. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.

d. Laboratory statements of results of analyses specified in Part B must be included in each report. The laboratory director shall sign the laboratory statement of analytical results.

2. By January 31 of each year, beginning in 1988, the discharger shall submit an annual report to the Regional Board covering the previous calendar year. This report shall contain:

a. Tabluar and graphical summaries of the monitoring data obtained during the previous year.

b. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be neded to bring the discharger into full compliance with the waste discharge requirements.

c. A written summary of the groundwater analyses indicating any change in the quality of the groundwater.

3. A well drilling log shall be submitted for each sampling well established per this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted within 30 days after well installation.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS .

A. Groundwater Monitoring

STATION	DESCRIPTION	OBSERVATION/ ANALYSIS	FREQUENCY
NW-1 (groundwater background Newark Aquifer)	To be installed as shown on Attachment A of Order No. 87-03.	Standard analysis	Once per quarter.
NW-2, B-1, B-2, B-3, B-4, B-6.	As shown on Attachment A of Order No. 87-03. (NW-2 to be installed)	Standard analysis	"
B-5	"	Water elevation above mean sea level.	"

2. CONTINGENCY REPORTING

A. A report shall be made in writing to the Regional Board within seven days if a statistically significant difference is found between a self-monitoring sample set and a WQPS. Notification shall indicate what WQPS(s) have been exceeded. The discharger shall immediately resample at the compliance point(s) where this difference has been found and analyze another sample set of at least four portions split in the laboratory from the source sample.

B. If resampling and analysis confirms the earlier finding of a statistically significant difference between self-monitoring results and WQPS(s) the discharger must submit to the Regional Board within 90 days an amended Report of Waste Discharge for establishment of a verification monitoring program meeting the requirements of Section 2557 of Subchapter 15. This submittal shall include the information required in Section 2556(b)(2) of Subchapter 15.

C. The discharger must notify the Regional Board within seven days if the verification monitoring program finds a statistically significant difference between samples from the verificatiobn monitoring program point of compliance and the WQPS(s).

D. If such a difference or differences are found by the verification monitoring program it will be concluded that the site is out of compliance with this Order. In this event the discharger shall submit within 180 days an amended Report of Waste Discharge requesting authorization to establish a corrective action program meeting the requirements of Section 2558 of Subchapter 15. This submittal shall include the information required in Section 2557(g)(3) of Subchapter 15.

I, Roger B. James, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 87-03.

2. Is effective on the date shown below.

3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer, or request from the discharger.

Roger B. James
Executive Officer

January 22, 1987
Date Ordered